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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/763,948
Filing Date: June 08, 2001
Appellant(s): JACKSON ET AL.

MaryAnne Armstrong
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 23, 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of the claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence relied upon in the rejection of claims under appeal.

U.S. Patent 4,987,023 SATO et al 01-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-20 and 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al (Jan. 22,1991).

Sato et al teach a device comprising

a substrate in the form of a material that consists of an inorganic dielectric (see whole doc. esp. figure 1 & example 1, layer 2 - electrode of metal oxide),

a charge transfer material which forms a charge transfer complex bonded to a substrate (see figure 1 & example 1 layer 3 a first organic thin film containing acceptor molecules and a second organic thin film containing donor molecules (layer 4)

where the charge transfer material further comprises an organic semiconductor and

(a) wherein the charge transfer material comprises donors or acceptors,

(b) forms a self assembling layer

(c) is bonded to the surface of a substrate (see figure 1 & example 1 layer 3 a first organic thin film containing acceptor molecules and a second organic thin film containing donor molecules (layer 4) and

(d) the thin film would meet the limitation of organic semiconductor such as polycyclic compounds listed in column 13& 14 for example).

Sato et al teach two thin film layers where one acts as donor and the other acceptor where charge transfer occurs between the layers.

With regard to claims 2, 4, 5, 14, 17, Sato teaches chemical bonding of the metal oxide to the surface of the substrate and all chemistry is somewhat material selective as broadly interpreted (see columns 5 and 6, example 1).

With regard to claims 3, 15, 16, Sato teaches the charge transfer material is organic (see column 1, lines 25-30, where Sato notes "In an organic thin film device containing donor and acceptor molecules of the present invention, application of an external energy such as electric field, voltage or light beam results in charge transfer between at least a part of the donor and acceptor molecules inside the organic thin-film." So the donor and acceptors are structures such as those shown in example 1 (see TCNQ-C_{18} structure at column 5, lines 23-33, which is an organic molecule).

With regard to claim 6, 11, 12, 18, 23, 24, Sato teaches the presence of a transparent metal oxide electrode between the surface of the support and the charge transfer material (see column 5, example 1).

With regard to claims 7, 19, the bonds of the various layers are chemical (see example 5).

With regard to claims 8, 20, Sato teaches organic bonding agents to make the laminate film (see example 5).

With regard to claims 10, 22, Sato teaches atomic based charge transfer materials (see example 5).

With regard to claim 13, Sato teaches fabricating the device shown above (see example 1).

(10) Response to Argument

Issue

Does the device taught by the prior art reference of Sato inherently comprise an "organic or inorganic semiconductor" within the scope of the claimed invention when an element is present which is capable of functioning as a semiconductor?

Prima facie case

The basic prima facie case of obviousness in this application is based upon a single reference, Sato et al. Sato teaches each and every structural limitation of the invention of the claims. (Appellant does not separately argue the dependent claims).

While the Appellant disputes the prima facie case, the Appellant does not dispute that Sato meets the elements of the claim other than the requirement for a "semiconductor". What Appellant does dispute is whether Sato meets the structural limitation of a "semiconductor" in concert with the preamble limitation that the device is alternately "for electrically contacting" or "for the isolation of organic or inorganic

semiconductors in electronic or optoelectric devices". The conclusion of prima facie obviousness over Sato is supported by several distinct lines of reasoning, including the admission by Applicant in the response of September 23, 2004, the effect of a preamble term such as "for electrically contacting" in claim construction, and the inherency of an element in a device claim.

Intrinsic evidence

To interpret the meaning of a claim term such as "semiconductor", the Federal Circuit in *C.R. Bard Inc. v. U.S. Surgical Corp.,* Fed. Cir., No. 04-1135, 10/29/04 has recently noted that,

> "A long line of cases indicates that the intrinsic record is the primary source for determining claim meaning. E.g., Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996); Autogiro Co. of Am. v. United States, 384 F.2d 391, 397-98 (Ct. Cl. 1967). The intrinsic record includes the specification and the prosecution history. Masco Corp. v. United States, 303 F.3d 1316, 1324 (Fed. Cir. 2002). Under this approach to claim construction, evidence extrinsic to the patent document "can shed useful light on the relevant art," but is less significant than the intrinsic record in determining the "legally operative meaning of disputed claim language." Vanderlande Indus. Nederland BV v. Int'l Trade Comm'n, 366 F.3d 1311,1318 (Fed. Cir. 2004). Particularly, our caselaw suggests that extrinsic evidence cannot alter any claim meaning discernible from intrinsic evidence. See, e.g., Intel Corp. v. VIA Techs., Inc., 319 F.3d 1357, 1367 (Fed. Cir. 2003) ("When an analysis of intrinsic evidence resolves any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence to contradict the meaning so ascertained.").

The Federal Circuit has clearly and consistently supported the position that the intrinsic evidence is determinative of the meaning of claim terms. The current situation is one in which the Appellant has expressly admitted, in the response filed September 23, 2004, that "For example, tetracyanoquinodimethan (TCNQ), which is disclosed Sato, can change from very low conductivity to very high conductivity electromagnetic, TCNQ, has the potential to have semiconducting properties under certain circumstances. However, TCNQ is not a semiconductor in Sato because is not functioning as such in the device of Sato. According Sato, alternating layers of acceptor and donor materials are stacked between electrodes and the application external energy such as an electric field and/or light results in a charge transfer between at least some of the donor and acceptor molecules inside the organic thin film."

Appellant attempts to corral this admission in the brief by arguing that while TCNQ can be used in a semiconductor, it is not so used in the device of Sato. However, for purposes of proper claim interpretation, the intended use of the device is not relevant. As the Federal Circuit noted in In re Schreiber, 44 USPQ2d 1429, 1431 (CAFC 1997) "It is well settled that the recitation of a new intended use for an old product does not make a claim to that old

product patentable." Therefore, since TCNQ can function as a semiconductor, it meets the claim requirements and Sato properly anticipates the claims.

The intrinsic evidence supports a finding that Sato teaches a device which comprises a "semiconductor" as interpreted based upon the express admission by Appellant.

Preamble and Intended Use

A second issue is whether the preamble limitation of "for electrically contacting or for the isolation of organic or inorganic semiconductors in electronic or optoelectric devices" constitutes a structural limitation on the method claim. The Federal Circuit noted in *Bristol-Myers Squibb Co. v. Ben Venue Laboratories Inc.,* 58 USPQ2d 1508, 1513 (Fed. Cir. 2001) that,

> "We next construe the expression "[a] method for treating a cancer patient to effect regression of a taxol-sensitive tumor, said method being associated with reduced hematologic toxicity" in the preambles of claims 5 and 8 of the '537 patent. Again, we agree with the defendants that this language is only a statement of purpose and intended result. The expression does not result in a manipulative difference in the steps of the claim."

The Federal Circuit found in *Bristol-Myers Squibb* that in order for the preamble to represent more than a "statement of purpose" or "intended result", the preamble must result in a manipulative difference in the claim steps.

In this case, the preamble elements are met for two reasons. First and simplest, the TCNQ meets the first of the two optional preamble limitations "for electrically contacting" since TCNQ is used by Sato for electrically contacting two electrodes.

Second, the TCNQ operates exactly as required by the claim. The TCNQ interacts with other components to form a self assembling layer which is bound to the surface of the substrate and which transfers charge between the electrodes. Depending upon the conditions imposed, the TCNQ must either act as an electrical donor or acceptor in order to transfer charge, as required by the Sato invention. When Appellant makes the argument that "even though both a door and chair are wooden objects, one would never consider a door to be a chair", this argument misstates the facts. TCNQ can function as a semiconductor in the device of Sato and under some circumstances, as expressly acknowledged by Appellant, will so function. Consequently, the device of Sato will have an organic semiconductor under some conditions.

Inherency

Finally, Appellant argues that the Sato device operates significantly differently from the claimed device. First, if either of the arguments raised above are persuasive, this argument necessarily falls because Sato teaches the structural elements which provide a prima facie case of anticipation.

However, Appellant provides a careful exegesis of the terms "semiconductor" and "insulator", while failing to appreciate that these terms only limit the claims insofar as the elements structurally distinguish. The entire argument regarding the function of the semiconductor does not differentiate the claim because the claim is an apparatus claim and not a method claim. There is no requirement in the device that the

"semiconductor" element operate to make the device more efficient or to isolate the organic semiconductor (which is only one alternative preamble limitation).

As the amperage of the device of Sato is increased from zero, there will inherently be a point at which TCNQ will function as a semiconductor, as Appellant notes in the brief at page 14. This statement that TCNQ has the potential to have semiconducting properties under certain circumstances is decisive, since the device of Sato can have any "particular electromagnetic, thermal or external electric fields" (see brief at page 14) applied to it. So application of the proper external field will result, as Appellant notes, in TCNQ functioning as a semiconductor. Even if it were conceded that this semiconducting by TCNQ does not occur during normal operation of the Sato device, the prima facie case of anticipation would remain applicable since the device of Sato would inherently be capable of meeting the claim.

Conclusion

The conclusion of prima facie anticipation over Sato is supported by several distinct lines of reasoning, including the intrinsic evidence in the prosecution history, the effect of the intended use of the device in claim construction, and the inherency of the semiconducting properties of TCNQ as admitted by Appellant.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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JEFFREY FREDMAN
PRIMARY EXAMINER
12/23/04

December 23, 2004

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